

In 2006 It's All About the HbA1c ... Or is it?



As we start 2006, there can be no doubt about the importance of HbA1c. It is strongly correlated to the development of microvascular complications in both type 1 and type 2 diabetes. In the Dec. 22, 2005 issue of *The New England Journal of Medicine*, it was

reported that patients with type 1 diabetes in the intensive arm of the Diabetes Control and Complications Trial had a 50% reduction in cardiovascular events versus those with standard control early in their disease (see article on page 17). HbA1c explained almost all of the increased cardiovascular risk with microalbuminuria and albuminuria adding some additional cardiovascular risk. We await the results of the National Institutes of Health Action to Control Cardiovascular Risk in Diabetics trial to see if glycemic control is central to cardiovascular risk in type 2 diabetes.

HbA1c is given such importance today that it is now central in all pay-for-performance (P4P) measures instituted across the United States. Whatever one thinks of P4P, or as it is recently called pay for quality, the ranking of health plans, clinics or individual physicians appears to be a growing strategy that many feel is an incentive that promotes improved results. Long-term benefits of P4P remain to be demonstrated. In England, HbA1c is one of the most heavily weighted clinical outcomes variables that if well controlled can earn general practitioners additional points used to figure compensation. In Germany there has always been pride in striving for excellent A1c values by utilizing such important strategies as formal diabetes education or aggressive use of insulin therapy.

If correlating with complications and determining one's salary is not enough importance granted to the HbA1c, recently the New York City Board of Health mandated that all HbA1c results be reported to the Board of Health. Previously, this status was granted only to certain contagious infectious diseases. Tracking the glycemic control of some 800,000 New Yorkers with diabetes will be an amazing study in the balance of coordinating a vast amount of data and developing strategies to make good use of it by effectively educating and communicating with clinicians and patients, and being prepared for criticisms regarding privacy issues.

The uses of HbA1c require a standardized assay so HbA1c can be compared nationally and internationally. The National Glycohemoglobin Standardization Program (NGSP) was a comprehensive effort to standardize assays across the United States. In the American Diabetes Association (ADA) Fall 2005

Professional Section Quarterly, ADA President Rizza explained that the International Federation of Clinical Chemistry (IFCC) has prepared a primary reference material of pure HbA1c and a new spectrometry method that precisely measures glycated HbA1c. The new normal range for the very precise IFCC A1c assay is 2% to 4%. Dr. Rizza suggested that maybe it is time to evaluate if HbA1c expression as mean blood glucose (mg/dL or mmol/L). Then patients and physicians would only have one number – the mean plasma glucose – to talk about being controlled or not controlled.

But is a mean glucose value really the most important glucose number? Clinical observation shows that two patients with an identical HbA1c (ie 7.5%) may have the same mean glucose (ie 175 mg/dL). But one patient's mean of 175 mg/dL was achieved by glucose values varying from 40 to 400 mg/dL, while the other had fewer glucose fluctuations and less post-prandial hyperglycemia with glucose varying from 80 to 200 mg/dL. Are the risks of complications the same for these two patients with the same HbA1c and mean plasma glucose?

A powerful, four-part series in *The New York Times* on the realities of living with and paying for diabetes highlighted the fact that 9 out of 10 patients with diabetes did not know their HbA1c value (see related article on page 21). It is time to have a dialogue focused not only on how we discuss if one's diabetes is in control, but also on what works to help improve that control. Whether it is HbA1c, mean glucose, or as I and others prefer, a combination that expresses overall average glucose control and the profile or patterns by which one is achieving that control, patients must be at the center of this discussion.

The medical profession settling on an approach that effectively communicates the level of glucose control and agreeing on the ideal glycemic target is only the first step. Next, patients must be educated, engaged and supported in self-management activities that revolve around safely but steadily moving toward that goal of optimal glucose control. Then we need to apply our new-found approach to communicating and achieving optimal glucose control to hypertension and lipid control in diabetes. That should keep us all busy and the pages of *DIABETIC MICROVASCULAR COMPLICATIONS TODAY* full in 2006! ■

Richard M. Bergenstal, MD, Chief Medical Editor